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THE EXTENSION ANIMAL HUSBANDMAN

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SOME RECENT PASTURE AND FORAGE FINDINGS

By A. T. Semple, Associate Animal Husbandman,
U. S. Bureau of Animal Industry.

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The economic desirability of putting about forty million acres or a little over 10 percent of our cultivated land back into pasture and forage crops introdues a number of new livestock mamagement problems. This adjustment may be better visualized by pointing out that such an addition to our improved pasture land would amount to an increase of fully 50 percent as compared to the 1930 acreage. On many farms some new pasturage will be a welcome change from the livestock "athletic fields" of recent years. Woodlots may be relieved of the burden of tramping and nibbling stock. It would also permit a part of the grazing area to be reserved each year until a crop of hay is cut for winter use. A rotation of such areas generally is good for increasing productivity of pastures.

The same good result for the pasture with a big saving in labor may be effected where snowfall is light, by reserving a part of the pasture in rotation each year for winter grazing. Such pastures have a value for breeding stock far in excess of the actual feed which may be obtained from them. Moreover, much labor in cleaning barns and hauling manure may be saved without a waste of feed by scattering the roughage of the wintering ration on such pastures. Such new pasture and forage acres would afford an excellent opportunity also to correct the rather serious shortage in legumes from the standpoint of animal nutrition as well as contribute to soil conservation and improvement.

In general, from the standpoint of livestock nutrition the legumes are important on account of the quality of the proteins, minerals and vitamins which they contain. The average legume hay contains practically twice as much crude protein as hay made from grasses. However, grass hay, practically equal in feeding value to legume hay, can be made by cutting grass when it is immature.

While green grasses and legumes are practically equal in value as sources of vitamins, alfalfa and other legume hays with much green coloring matter are among the best sources of vitamin A. Such green legume hays rate highest as substitutes for green pasturage. The most outstanding property of legumes is their calcium content. They contain from two to ten times as much as other roughages, such as timothy and stover, and nearly a hundred times as much as grains such as corn and kafir.

Except as they supply such nutrients more abundantly and contribute to the growth and well-being of the animals, the legumes have no qualities in general that distinguish them from nonlegume plants in the quality of the meat and other livestock products which they produce. Possibly an exception should be made on account of the production of soft pork from feeding such seeds as peanuts and soybeans. Similar results, however, may be obtained by feeding certain less common nonlegume feeds which are rich in oil.

Since an important consideration in fattening animals is the net energy value of the ration, legumes serve chiefly as supplements to furnish a more adequate supply of proteins, vitamins, and minerals. The protein-rich concentrates may be cheaper as a source of protein. The legume seeds, rich in oil, and their byproducts may also contribute materially to the energy value of the ration. The nonlegume hays contain nearly 10 percent more of digestible nutrients even though they contain more crude fiber. In general, however, the legume roughages are superior to the nonlegume roughages in fattening rations. This is borne out to some extent in data contained in U.S.D.A. Technical Bulletin 23 "Costs and Methods of Fattening Beef Cattle in the Corn Belt." A summary of the groups of cattle fed corn and legume-hay rations and those fed corn and mixed hay shows that the legume-hay rations produced 1.99 pounds of gain per head per day while the corn and mixed hay rations produced 1.87 pounds daily gain. The return per $100 of investment for the corn and legume-hay cattle was $103.16, while for the corn and mixed hay group, it was $101.77. There were not sufficient data to make a good comparison of corn and legume hay with corn and nonlegume hay.

There are considerable data to indicate that the objections sometimes raised to so-called "grass" beef are due to insufficient grass rather than the use of grass as contrasted with grain and other harvested feeds. It is, of course, possible to get a somewhat higher finish with the more concentrated feeds than is usually possible where animals have to depend on grass alone.

Recent experiments by the Michigan Agricultural Experiment Station furnish additional proof that the liberal use of good pastures makes livestock production more profitable. In the case of breeding ewes, for instance, the cost of wintering may be cut almost in half. Ewes, wintered on 2 pounds of red clover hay and 2 pounds of straw daily and turned on good pasture in the spring, weighed practically the same when their lambs were weaned in August as similar ewes which had been wintered on 4 pounds of red clover hay per head daily. The difference in weight, favoring the ewes getting the more expensive ration, was overcome during the grazing season. Both groups of ewes had grain for four weeks before lambing. The Indiana, Missis-

sippi and Tennessee stations have proved that choice fat lambs may be produced on good pasturage alone. In the majority of cases, the addition of grain did not pay.

When good, cheap pasturage is available and feed prices are high, the Michigan station recommends a limited ration of grain and alfalfa hay and free access to straw for wintering draft colts. While development is slowed down by such winter feeding, they are not stunted and the cost of producing them is reduced very materially. As in the case of wintering steers, the colts making the least gain in winter make the greatest gain on pasture. Their gains are mostly growth, while those more heavily fed in the winter fatten more while growing.

While wrestling with the problems of returning crop land to grass by which to restore the balanced condition of agriculture which existed before the World War, it seems worth while to note the findings of the Meadow and Pasture Association in Sweden, as reported in Herbage Reviews, March 1935. Investigations on farms under the control of that association show that one Scandinavian feed unit (the equivalent of 2.2 pounds of barley) is at present produced at a cost of approximately 1.3 cents in good pasture; 2.3 cents in hay; 3.8 cents in roots; and 3.6 cents in grain.

As A. Elofson of Upsala reports, Capt. H. Hegardt of Thorsatra who makes the most extensive use of pastures and the smallest use of protein-rich concentrates obtained the highest milk production at the lowest cost among all the herds of Swedish Red-and-White cattle. In order to do this it was necessary to produce hay of high nutritive value. This was accomplished with hay containing a high percentage of legumes, especially Swedish red clover, harvested at an early stage before the flowers began to color. While the tonnage is less by this method, the percentage of protein and the digestibility of such hay are much higher than in ordinary hay from mature plants.

Perennial meadows cut twice a year yielded hay containing 9.4 percent protein, while those cut four times a year yielded hay with 16.7 percent protein. The total yield was reduced only 20 percent by the more frequent cutting. Such frequent cuttings favor the maintenance of good stands of white clover and tend to reduce or avoid the necessity of adding nitrogenous fertilizers to maintain the yield. Ordinarily the shading effect of tall grass in pastures and meadows kills out white clover. When the grass becomes thin and stunted by the lack of nitrogen, white clover may come in and build up the nitrogen supply to a point where the white clover is again crowded out by the grass.

In emphasizing the higher nutritive value of immature forage, we must not overlook the need for more efficient methods of harvesting and storing, especially in a humid climate, because such forage is harder to cure. When curing hay in the field is not feasible, the making of silage from green legumes or immature grasses with the addition of 1 to 2 percent of molasses, or finely ground corn thoroughly mixed with the silage, is recommended. The addition of such carbohydrates promotes fermentation and prevents the putrefactive action which takes place in silage containing too much protein in proportion to the carbohydrates. Both the U. S. Bureau of Dairy Industry and the South Carolina Experiment Station have obtained good results from using molasses to make legume silage. At the Wisconsin Experiment Station similar results were secured by using a mixture of acids to check the development of putrefactive bacteria.

Investigations in South Africa, conducted by Doctor Marais, indicate that alfalfa hay may be made into a very palatable silage by adding to each ton of green material 8 to 9 gallons of a mixture consisting of 8 gallons of water, 2 gallons of hydrochloric (muriatic) acid of 30 percent strength, and 10 pounds of molasses containing as much as 50 percent sugar. If the alfalfa is not cut until it is in flower, 40 pounds of such molasses diluted in 10 gallons of water and added to each ton of the green alfalfa gives good results according to the South African experiment.

Artificial drying is very satisfactory for drying such forage, provided the costs are kept low. New methods recently tested in Sweden indicate that drying costs may be not more than 40 percent of the cost of harvesting and making into ensilage.

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A CHALLENGE

Irving Langmuir has said that in the field of pure science the challenge and the opportunities ahead do not lie so largely in the single track of physics, chemistry or biology, but in the synthesis of these. Instead of a scientist working alone in his laboratory, he sees teams of three or four bring together their specialized knowledge in a combined attack on problems which do not conveniently confine to a single field.

Can we fit physical, economic, biological, and the other fields of science into an integrated whole? Can we harmonize or adjust these several technics in the reference to the individual farm, the region, and the type of farming area?

This whole field presents one of the real challenges to experiment stations and agricultural colleges today. These have met the challenges of the past. Who is better prepared to meet it now? --M. L. Wilson and H. R. Tolley.

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4-H LIVESTOCK CLUBS

By R. A. Turner, Field Agent, Central States,
U. S. Department of Agriculture.

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If a traveler were to journey to every community in the United States where 4-H livestock clubs are to be found, and if he were to ask the question "What are these 4-H clubs accomplishing?", he might receive almost as many kinds of answers as persons interviewed. In the range country of the West, the stockmen might give somewhat uniform replies. The swine and beef cattle men of the Corn Belt might have their particular point of view. The horse men from any given section might speak in like terms. But when boiled down, all of these testimonials would doubtless classify under a few general headings such as "4-H livestock club members are acquiring a respect for farming", or "Better livestock is now to be found in our county", or "These young farm folks are developing into understanding citizens", and the like.

To persons unfamiliar with extension work as a whole, or with the 4-H clubs in particular, these replies would seem to be of a rather general character. But to the extension worker or to those persons who have observed results, such answers reveal the true situation.

The 4-H Club Movement Is Growing

Through the past several years the 4-H club movement has steadily progressed until at the present time there are approximately 920,000 rural young folks enrolled in these clubs. In every State, Hawaii, and Alaska 4-H clubs are to be found. These young Americans now produce annually about 2,000,000 bushels of corn, 13,000,000 pounds of cotton, care for 2,500,000 birds in their poultry flocks, raise 51,000 dairy animals, 24,000 beef animals, 33,000 sheep, and 117,000 swine. 4-H girls can about 6,000,000 jars of food products for home consumption. 15,000 4-H boys engage in reforestation or farm-woodlot-improvement projects. 175,000 4-H members raise gardens from which food for the family is obtained or products are sold on the market.

In all this development in the size of the 4-H club movement the livestock phase has kept pace. The truth of this statement is seen in the increased number of members engaged in livestock projects:

Projects	1923	1926	1930	1933
Beef cattle	6,139	9,263	16,640	23,006
Swine	51,611	38,413	54,889	74,627
Sheep	1,640	6,102	11,183	13,326
Horses and mules ..	233	-----	842	2,103

Fit Into Plans For Farming

4-H livestock club activities lend themselves to adapting the club program to the agricultural situation in a county or state. The year 1934 saw an increase of about 11 percent in the number of sheep and lambs on the farms in Illinois. Adapting the livestock club program in this development, 4-H club members in 72 counties engaged in sheep projects, an increase of 12 counties over the previous year.

Farm boys learn through their 4-H clubs that their stock should be sold when the market is favorable. Car lots of club livestock from the Corn Belt states find satisfactory markets through the weekly auctions, exclusively for 4-H club stock, conducted at the Union Stock Yards in Chicago.

Farm returns are increased when products which the market demands are for sale. In Nebraska quality carcasses are stamped "4-H baby beef" and these are sought by local meat-market owners all over the State.

The need for providing against possible accidental loss of livestock is met by 4-H club boys when they take out insurance on all the animals owned by members of a given club. A lesson in cooperative effort is a byproduct of this procedure.

Financial returns, based upon feeding, care, and management, result from the exhibiting of animals at the scores of livestock shows and sales held in all sections of the United States.

Detailed records are kept by 4-H livestock club members, judging contests are held to improve standards, and team demonstrations are given to acquaint others with subject-matter information obtained through 4-H club activities. By demonstrating good methods of handling livestock on their own farms, these young farmers often influence other farmers in their neighborhood.

Achievement Has A Definite Meaning

President Wilson once said "Achievement is the only patent to nobility in this country." 4-H club members make the term "Achievement" one of the big words in their vocabularies. It is their patent to recognized standing in their community.

From the beginning made in their 4-H club, and with the assistance of the livestock specialist and the county extension agent, thousands of men on farms have built up herds and flocks which have won recognition for quality and performance.

The statement "Nothing is worth the building unless the builder grows" is as true today as on the day it was written. Thus, throughout the whole history of the 4-H club movement the development of boys and girls has been considered of paramount value. The economical production of good livestock is a means toward that end.

Through 4-H livestock clubs the boy, the girl, the father, and the mother in the farm family are brought more closely together. A common understanding and a partnership in the affairs of the farm and the home are developed. Through the 4-H clubs is often laid the foundation, not only for the immediate good management of livestock but also for future effort and achievement.

The traveler, arriving at the end of his journey, will have found that the replies to his question "What are these 4-H clubs accomplishing?" prove again that this Federal and State activity for rural young people is most constructive in its accomplishments.

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PER CAPITA CONSUMPTION OF MEATS AND LARD IN UNITED STATES

(Based on Federal inspection statistics, Government relief slaughter excluded).

Year	Beef and veal (Lbs.)	Pork* (Lbs.)	Lamb and mutton (Lbs.)	Lard (Lbs.)
1921	41.74	48.34	4.78	4.59
1922	45.21	52.87	3.94	7.16
1923	45.92	63.18	4.04	8.16
1924	46.52	63.32	4.01	8.26
1925	48.00	54.57	4.07	6.61
1926	49.16	52.54	4.27	6.73
1927	45.18	56.53	4.24	7.17
1928	40.11	61.08	4.36	7.80
1929	39.94	61.13	4.53	7.57
1930	38.77	56.17	5.27	7.27
1931	38.49	56.87	5.56	7.87
1932	35.37	58.06	5.45	8.25
1933	40.10	57.88	5.36	7.99
1934	44.03	52.23	4.93	7.29

*Including lard.

--Bureau of Agricultural Economics, U.S.D.A.

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KANSAS BEEF-CATTLE PRODUCTION

The adult phase of beef-production work in Kansas for the past 6 years has dealt largely with the improvement in the quality and type of breeding cattle, the management of the herd and the more efficient use of feeds. Particular emphasis has been placed on the production of creep-fed calves. During 1934, which was the beginning of the second 5-year cycle of the subproject work, an additional phase was added, that of producing yearlings as finished beef by the deferred system of wintering well as calves and then grazing for 100 days and finishing in the dry lot.

The beef-cattle-production program of Kansas aims to utilize the Kansas-produced roughages and grasses in the most efficient manner, in producing a desirable carcass for the consumer and in doing so to reduce to a minimum the hazardous speculation that has characterized Kansas beef production in the past. By utilizing the roughages and grasses largely through the breeding herd and by creep-feeding calves on grain, a very efficient use is made of Kansas crops. Likewise the deferred feeding of calves as an alternative has proven one of the most efficient methods. The production of beef by either of these methods has proven to be a conservative undertaking.

The phases of beef-herd management that have been stressed are:

Using good-type breeding stock.
Wintering the breeding herd well on roughages plus a protein supplement.
The production of early calves (November, December, January, February, and March).
Creep-feeding the calves.
Fattening in the dry lot after weaning for an early market.

The additional phase that was added in 1934 is the deferred feeding of the calves, which stresses these points:

Good-type calves.
Wintering on roughage plus 4 or 5 pounds of grain and protein supplement.
Grazing 100 days.
Full feeding in the dry lot.
Marketing on an early market.

The extent to which long-time goals have been reached is indicated by the following:

Goals Set	Percent accomplished
A good purebred bull at the head of every beef herd	64
The culling of cows practiced by all cattlemen (Augmented by Government purchase program)	95
Short, early calving period practiced	37
Supplementary pastures to adequately provide summer grazing, when the regular pastures are over-grazed	75
Creep-feeding on farms where practical	14
Adequate winter feed for cow herds and replacement stock by either dry roughage or silage or both, supplemented by protein feed and mineral	55
The selection, feeding, and production of beef-cattle by the boy and girl 4-H club members that satisfy market demands for choice beef	50

Beef-cattle production records and AAA farm records kept by cooperators enrolled in this subproject numbered 106.

The following statistics from county agents' reports give additional information:

Total number of beef herds	24,256
Beef cows in these herds	761,326
Beef-herd-management demonstrations	106
Cattle in these demonstrations	7,915
Profit obtained per calf on demonstration creep-fed calves over calves not creep-fed	$7.22
Percentage of calves that are produced early (Nov., Dec., Jan., Feb., March)	37
Percentage of cattlemen using a balanced ration in fattening cattle	54
Percentage of cattlemen who produce and fatten their own calves	35
Beef-cattle shows held	59
Cattle exhibited at these shows	2,450

--From Kansas Annual Report, 1934.

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F. W. Beall is now an animal husbandry specialist on the Oklahoma extension staff serving as assistant to Paul G. Adams in all phases of the program.

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TEXAS SWINE DEMONSTRATIONS

Extension work with swine during 1934 consisted of demonstrations in production conducted by farmers and by 4-H club boys. The greatest demonstration of them all, however, was the demonstration by 32,104 farmers who cooperated with one another and with farmers of other States in keeping the production of pork in line with consumption. This demonstration was accomplished through the cooperation of the Agricultural Adjustment Administration and the Extension Service, jointly aiding the farmers in limiting their production, and thereby helping to insure a fairer price for their commodity.

A total of 32,104 Texas farmers signed corn-hog contracts in 1934, and as a result, a total of $4,350,095 was distributed to these farmers in benefit payments. In engaging in as enormous task as this it was only logical that a large amount of time would be devoted to this activity by the county agents in the 229 counties in which such contracts were signed. Additionally, this work required a fair amount of time from the district agents, and most of the time of the extension swine specialist.

Splendid cooperation prevailed among the farmers throughout the year, and the obligations of the contract were accepted in a very serious manner by the contract signers. As a result, the year ended with all the farmers except 69 complying with their contracts in every detail. The few scattering cases of partial compliance were largely unintentional, and in the main were the result of slight misunderstandings. The result of the corn-hog referendum which was held in the fall of 1934 can be cited as proof of the farmers' being satisfied with the program in that the ballots cast showed that 91 percent of Texas contract-signers voted for the continuation of a corn-hog program for 1935.

In spite of the large amount of time that the county agents devoted to the adjustment program, the work in swine-production demonstrations did not fall off materially. In 1934, 599 farmers conducted swine demonstrations as compared to 551 for 1933. These demonstrations involved 2,042 sows as compared to 2,468 for 1933, and there were 12,660 pigs fed out in these demonstrations as compared with 17,149 for 1933. Likewise, the number of cooperators

in 1934 was approximately equal to the number in 1933. There was a slight falling-off in the number of 4-H club boys who carried on swine-production demonstrations in 1934 as compared to 1933. In 1934, 742 club-boys conducted swine-production demonstrations, and in 1933 1,066 conducted such demonstrations.

In the main the swine demonstrations were more profitable in 1934 than in recent years. This can be attributed to the fact that hog prices were considerably higher in 1934 than in previous years.

Texas farmers, now, more than ever, are interested in producing pork for home consumption and in curing their own meat on the farm, and there is nothing in the adjustment program which in any manner prevents or discourages such an activity. In 1934, 20,597 farmers cured pork the "A. & M." way and 52,802 hogs were cured in this manner. In 1933, 19,121 farmers cured pork the "A. & M." way and those farmers cured 41,141 hogs. These figures show an increase in interest along this line.

--From Texas Annual Report, 1934.

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GROWING THRIFTY PIGS IN INDIANA

In connection with the "Growing Thrifty Pigs" project in Indiana more than 1,200 farmers in 67 counties of the State received one circular-letter each month during the past year. These letters contained timely and important suggestions regarding methods and practices in hog production. A survey on the reaction of the farmers to such letters indicated that 98 percent of the farmers read the letters; 76 percent saved them for future reference; 15 percent followed all and 82 percent a part of the suggestions offered in them. More than 4 out of 5 of the farmers reported that the letters helped them to raise better pigs than they had raised, on the average, the three preceding years. One hundred thirty-six farmers who had been enrolled in the project for some time estimated the value of the information they had received from the letters at from $10 to $800 per farm, the average being $114.50. These 136 farmers owned an average of 12 1/2 brood sows and weaned a total of 10,869 pigs in the spring of 1933.

--Indiana Annual Report, 1934.

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THE FARM WORK-HORSE SITUATION

By S. R. Speelman, Associate Animal Husbandman,
U. S. Bureau of Animal Industry.

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Data compiled annually by the United States Department of Agriculture show that the number of farm work horses has been declining rather steadily for the past 17 years. The decrease has resulted from the fact that the number of horse colts raised each year has not been sufficient to offset large annual death losses and other disappearances of farm horses of serviceable age. During the early stages of this period of decline, losses in total numbers of work horses apparently were not of great consequence to farmers generally. Breeding activities during World War days had created some surplus of animal power and there were substitutions of mechanical for animal power in numerous instances. In recent years, however, the annual losses of animal power and various changes in economic conditions have created and emphasized the serious shortage of good horses of working age. This, in turn, has greatly increased the demand for good work animals and has brought steadily rising prices.

Farm horse breeders of the United States evidently first became aware of the serious work-horse shortage in 1932. It was during that year that a general attempt was made to breed more farm mares and to increase the colt crop. This increased breeding resulted in an estimated total of 458,000 head of horse colts under 1 year of age on farms in the United States on January 1, 1933. After this good beginning, breeding continued to increase in both 1933 and 1934. The horse colt crops which resulted from these breeding seasons were estimated at 547,000 and 692,000 head on January 1, 1934 and 1935, respectively. With a continuation of the interest in farm horse production for the 1935 season, it seems there may be about enough colts raised this year to replace older animals lost by death and other causes. Increased breeding must continue for 2 or 3 years more, however, before the annual decline in farm horses of working age is stopped.

Two of the greatest obstacles in the path of renewed horse breeding in recent years have been the scarcity of good, producing mares and of sound, young stallions. With renewed interest in farm horse breeding well under way, time may correct this situation. It will take years of breeding work, however, to lower the average age of workstock to the point it occupied 15 years ago.

That some progress is being made to correct the shortage of stallions is evidenced by increases in numbers of sires enrolled for public service in various States having compulsory stallion enrollment laws. The Department recently prepared a report which shows the progress in stallion enrollment for 22 States for the years 1932-1934. Copies of the report are available, on request, from the Bureau of Animal Industry, Washington, D. C. In 1932 there were 10,104 public service stallions, of various types and breeding, in use in the 22 States. This number increased to 11,844 in 1933 and to 13,753 in 1934. These figures do not include all stallions in service in those States, but the upward trends in registrations and use point definitely to renewed horse-breeding activity in almost every state. Unfortunately, for the cause of horse improvement, the greatest percentage gains in enrollment figures have been made by grade, scrub, and mongrel stallions. Likewise, the gains were practically all made by sires of the draft type.

As might be expected, the Department's data indicate there is a rather close relationship between increases in colts raised in various states and regions and the increases in numbers of stallions enrolled for public service in such places. With a better supply of good, purebred stallions available in the future and with farm horse-breeders in an improved financial condition, it is probable that future patronage will go principally to the purebred sires.

The production of farm work-horses is a "long time" enterprise. For this reason and because of the present shortage of workstock it seems quite probable that horse prices, which have been steadily rising for several years, will continue to increase for some time to come. If an incentive is needed, these factors alone should be responsible for an increased production of colts on the farm. Everything considered, the production and use of animal power are economically sound practices for a majority of farmers. It is certain that aged workstock must be replaced from time to time on practically every farm, and, with prices rising, it is no longer possible to buy replacements as cheaply as they can be grown at home. Also, it is probable that any surplus of animal power which may be produced on individual farms can readily be disposed of at profitable figures. It is time to raise more colts.

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NEW 4-H PROJECT

Nebraska is initiating a new 4-H livestock club project this year. It is called "home meat production" and involves the feeding of one or more meat animals and the slaughtering, curing, and judging the meat of same. It is the hope that this work will interest boys and girls who are unable to obtain the necessary feed and finance for larger club projects.

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SHEEP-PROJECT RESULTS IN MICHIGAN

Summaries in the native-lamb-improvement project for 1934 show that 260 sheepmen improved their practices in docking and castrating lambs over 1933. Two hundred and five replaced their scrub rams with purebreds, 215 dipped their flocks, 300 drenched their flocks three times, while close to 350 sorted and graded their lambs and sold only choice individuals. The improvement shown through this project is so noticeable that today a number of counties report that from 95 to 98 percent of their sheepmen dock and castrate. One county reports that 90 percent of its sheepmen are using purebred rams, another that 85 percent are dipping their sheep each year, and another that 80 percent of the sheepmen in the county are drenching their sheep three times during the season. Still another county reports that 85 percent of the sheepmen in the county sort and grade their lambs for market. Over 10,000 sheepmen received direct benefits in the counties in which this program was conducted this year.

Although the agricultural agents in almost every county had little time to spend on demonstration work due to the AAA program, figures show that a total of 128 community dipping and drenching demonstrations were conducted at which 58,533 sheep were dipped and drenched. A total of 65,000 sheep and lambs were treated at the 177 drenching demonstrations.

The records of the sheepmen cooperating in the first Wolverine lamb-production contest conducted five years ago show that an average of 87.01 pounds of lamb was produced per ewe. The record this year (even in the face of drought conditions) was 104.56 pounds per ewe for all the 98 flocks finishing, out of the 162 enrolled. In the 135-day period, these lambs averaged 105 pounds each. The winner produced 154.25 pounds of lamb per ewe. The ten high flocks produced an average of 138 pounds per ewe. All the winners used good management practices. They flushed their ewes before breeding and fed legume hays during the winter, grained their ewes before and after lambing, drenched their flocks each month during the grazing season, dipped to control external parasites, and weaned the lambs at 3 1/2 to 4 months of age and placed them on good second-cutting alfalfa when necessary.

A total of 210 rams were sold from the ram truck this year, and were distributed in 40 different counties. The truck covered a distance of 2,040 miles, and close to 2200 people were in attendance at the meetings and demonstrations. The average sale price for the young rams was about $28 per head. Fifty-nine different breeders in the state made consignments of rams for sale on the truck and they, too, were benefited. Very good rams were handled.

This is shown by the fact that 51 had previously been shown at the State Fair. Thirty of the rams were sold to 4-H club members, showing that they are interested in improving the quality of their sheep. Alcona County led in the number of rams purchased for the fifth consecutive year, and to date has taken a total of 113 rams. This county has only three purebred breeders. A total of 1,048 rams have been placed from the truck in counties throughout the State since this program was started. Market representatives are today pointing out that it is from these counties that they are receiving the best type lambs. Very few of the rams prove unsatisfactory and out of the 186 delivered last year, not one proved to be a poor breeder.

--From Michigan Annual Report, 1934.

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MICHIGAN 4-H CLUB WORK

Through 4-H club work, in Michigan, many adults are reached and better livestock practices introduced. In some cases the 4-H club member is able to outdo his father and this is sufficient proof that the program is of merit.

Many of the leading livestock men in the State were former club members. Considering their respective ages they have already gone a long way toward the establishment of outstanding herds and flocks. There is no better method of producing permanency than having as a basis an early start and outstanding foundation animals.

Many of our regular projects have been so outlined and organized as to take care of the 4-H club boy who has just finished his 4-H club career. A check of enrollments in the various production and improvement projects shows that former 4-H club members are taking an active part and making some of the best records. Their fathers are also pleased as the work is keeping the boys interested.

A greater stimulus and more attention are to be given this work during the coming year. Work already done has helped, as more and more parents have been educated to the value of club work and are now ready to give their children an opportunity to start. Many new livestock clubs are being formed and old clubs are reporting larger enrollments.

Boys and girls carry on and general conditions do not dampen their enthusiasm for the future. This is also good for their parents, as it adds more cheer and a common interest in each home. Work of

this kind needs stressing. We are tying it up with and making it an essential part of our program. This work stimulates quality production.

The 4-H Club Department is responsible for the organization of the work and the extension organization assists them with the presentation of the subject matter and with the educational demonstrations.

--From Michigan Plan of Work, 1935.

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BEEF-CATTLE SALES AND BEEF-CATTLE DEVELOPMENT IN GEORGIA

By R. E. Davis, Agent in Animal Husbandry,
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On April 1 and 2, 1935, in Savannah, the fourth annual fat cattle show and sale was held. A total of 559 head of cattle were sold at an average price of $7.38 per hundredweight. On April 3 and 4, in Albany, the second annual show and sale was held with 1,116 head of cattle entered. They averaged $8.00 per hundredweight in the sale.

The first sale at Savannah was held in 1932 with 76 head of cattle, and at Albany in 1934 with 385 head. The cattle at Savannah in 1932 were almost all of the common range type, the grand champion steer being a first-cross Hereford from a native range cow. Each succeeding show has shown higher breeding throughout, quite a number of head in both shows in 1935 being purebreds.

As a result of this progress in breeding there has also been a stronger tendency toward balanced feeding. The old idea was that heavy feeding of roughage with little or no grain was sufficient. However, with each show and sale have come not only higher grade cattle but also better feeding practices.

These shows and sales have played an important part in the promotion of the beef-cattle industry in Georgia. The annual reports of the county agents show that 249 purebred beef bulls were placed on Georgia farms in 1934, together with 1,770 head of high-grade and purebred females. Seventy-five percent of this number went into the Savannah and Albany areas. Since January 1, 1935, some 50 purebred bulls have been placed on farms and ranges in the southern part of the State, only a small part of which are replacements. We have on the order list, now, some 15 farmers who are waiting until just the desired type of bull can be located.

Two other cattle sales have been held this year, since the Savannah and Albany shows, one in Blakely on April 17, where 241 head were sold, and another in Albany on April 25, where 246 head sold for an average of $6.29 per hundredweight. This succession of periodic sales is rendering a real service to the cattlemen and, if it can be maintained will tend to stabilize the outlet for live cattle and broaden the local consumption of Georgia beef.

A new feature in 1935 was the showing of the boys' and girls' 4-H club beef calves, which activity seems destined to gain in momentum from year to year. Of the 18 4-H club calves at Savannah and the 22 at Albany, all showed well and the reserve champion of both shows came from the 4-H club department in its first competition with adult feeders.

These sales were inaugurated through the leadership of the animal husbandry specialists and county agents, in cooperation with their livestock development committees. It is the plan of these forces to continue these annual shows and sales, limiting entries to animals that show breeding and finish, and holding back for other disposition all cattle that do not have the necessary qualifications.

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LEADERS PREFERRED

1. The boss drives his men; the leader coaches them.
2. The boss depends upon authority; the leader on good will.
3. The boss inspires fear; the leader inspires enthusiasm.
4. The boss says "I"; the leader says "We".
5. The boss assigns the tasks; the leader sets the pace.
6. The boss says "Get here on time"; the leader gets there ahead of time.
7. The boss fixes the blame for the breakdown; the leader fixes the breakdown.
8. The boss knows how it is done; the leader shows how.
9. The boss makes work a drudgery; the leader makes it a game.
10. The boss says "Go"; the leader says "Let's go".

--Selected.

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Preliminary reports on various items contained in the 1935 agricultural census schedule, including number of livestock on farms by counties and states, are now being released by the Bureau of the Census and may be obtained by addressing that bureau, U. S. Department of Commerce, Washington, D. C.

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1934 STATISTICAL RESULTS

Alabama:

Four hundred seventy-three farmers were assisted in obtaining purebred beef bulls, 28 in obtaining purebred rams, 1,539 in purebred boars, and 60 in stallions and jacks. More than 400 mares were introduced. Twenty-six hundred fifty-two pig club members and 339 beef-calf-club members completed their projects. Twelve hundred twenty-eight families were helped in the home curing of pork and 331 with beef. Fifty-three hundred forty-two cattle were canned in private homes.

Florida:

Forty-eight beef calves and 332 pigs were fed by 4-H club members, 364 better bulls were placed, and 321 bulls were given special winter feeding. One hundred eighty-nine families were given definite assistance in meats work.

Louisiana:

Assistance was given in the placing of 146 purebred boars. Nineteen hundred seventy-one families were helped in the slaughter, cutting, and curing of pork.

Mississippi:

One hundred eighty-four purebred beef bulls, 355 purebred boars, 34 jacks, and 16 purebred rams were placed, also 59 high-grade and purebred beef cows and heifers, 237 sows and gilts, and 431 mares. Six hundred seven farmers were aided in the slaughter, cutting, and canning of beef. Two hundred seventy-one trench silos were constructed. Fifty-two hundred eighty-five farmers followed parasite control recommendations with hogs. Sixteen hundred sixty-one farmers were given assistance in butchering, cutting, and curing pork. Twenty-seven hundred fifty-two farmers followed sheep-parasite-control directions.

Montana:

Four hundred ninety-two farmers and ranchers were aided in getting purebred sires and 63 beef-calf-club members fed 81 head of calves.

North Dakota:

Assistance was rendered in placing 270 purebred beef bulls, 203 rams, and 106 boars.

Pennsylvania:

Thirty county wool growers' associations made up of about 4,000 producers marketed cooperatively approximately 775,000 pounds of wool. Two hundred ninety purebred rams, 60 purebred ewes, and 510 good grade ewes were placed. Fifty-one farmers were aided in obtaining purebred beef-bulls. Two hundred boys and girls fed baby beeves, and 21 ton litters were produced.

Tennessee:

In 41 counties, 937 beef calves were fed by 242 boys and girls and 94 adults in demonstration projects. Two hundred eleven of the juniors and 81 adults exhibited 589 calves at the State show.

West Virginia:

Two hundred fifty-one purebred rams were sold in 10 sales held under the auspices of the West Virginia Purebred Sheep Breeders' Association, as compared to 213 in 1933, and 195 in 1932. Two hundred seventeen of the 1934 rams were products of West Virginia flocks.

In the 27 counties in which the county agents competed for trip prizes to the International Live Stock Exposition, on the basis of best animal husbandry programs, 2,099 calves were dehorned and castrated, 337 4-H club members completed livestock projects, 2,489 producers marketed wool cooperatively, 1,085 sheepmen treated their flocks 6 or more times for internal parasites, 1,040 stockmen dipped their cattle or sheep, 265 scrub bulls and 283 scrub rams were eliminated, and 183 purebred bulls and 260 purebred rams were placed. A definite score card for rating counties is employed.

During the year, 2,901 farmers made 4,695 cooperative shipments of livestock to market. Thirty-four thousand two hundred fifty-one lambs, 3,564 cattle, 1,246 calves, and 286 hogs with a gross value of $295,479.39 were included and 19 different marketing associations and 24 counties contributed to the shipments. An average of $0.8534 out of each dollar for which the livestock sold was returned to producers. Twenty-four hundred eighty-nine wool growers marketed 341,099 pounds of wool cooperatively, of which only about 9 percent was "rejects". Reject wools made up 15 percent of the total in 1931.

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"Control of Worms in Hogs" is the title of a new 2-reel motion picture, which is available from the Division of Motion Pictures, Extension Service, U.S.D.A., Washington, D. C.

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TEXAS MEAT ACTIVITIES

The coined phrase "The A. & M. Way" of preparing meat has done much to keep extension methods of meat preservation alive among farmers all over the State.

Each year Texas farmers are providing more and better home-cured pork products, evidence of which is very conclusively shown at the many meat exhibits held in counties over the State.

The extension demonstrations have had a great effect on the quality of meat provided for future use. First, the extremely heavy overfat hog is not so commonly killed. A butchering demonstration convinces a great many farmers that grain has been wasted in making a 350- to 400-pound porker. They find that a 225- to 250-pound pig yields the lean rather than thick overfatty pieces. Second, the old haphazard method of chopping up the meat is being replaced by a neat systematic method of cutting recommended by the agents. Better cutting methods have provided a better, smoother ham that will make more good cuts after it is kept 5 to 7 months after curing. More cured products can be made by careful cutting than by careless hacking down each side of the back bone with an ax.

Agents report conducting 589 demonstrations in the State in which they killed 1,071 hogs and cut 4,976 during the 1934 season.

Beef Work

More cattle have been killed and canned on the farm than ever before in the history of Texas. This development was due to three things: First, the training of home agents to produce more and better canned and cured beef. Second, less spending money among farmers turned their minds to producing the cheapest meals they could--and that involved home-grown meats. Third, it seems that everybody became canning conscious in 1934. With a shortage of gardens from the drouth and a shortage of feed for the calves, rather than lose everything through lack of feed, many calves were killed that might have been carried on in a normal year.

County agents report holding 719 beef demonstrations in which they killed 412 animals. They also report cutting 1,902 cattle, some of which were at special demonstrations held in the relief canning plants.

Sheep Work

Consumption of lamb is still very low among the farm people

of Texas. Interest in a better method of slaughtering is growing rapidly. Old-time practices of pouring water in the flanks, of keeping the wool from touching the meat, of removing the viscera before the pelt is removed to keep the meat from tasting "sheepy," kept many persons from attempting to kill a sheep on the farm. Such ideas are fallacious and only through lamb-killing demonstrations on the farm will these ideas be corrected.

County agents conducted 23 lamb demonstrations in which they killed 43 lambs and cut 41.

Value of Work to Livestock Industry

The effects of meat extension work on the producers of all three classes of our livestock are similar in many respects. For example, the costly toll of internal parasites among our hogs, cattle, and sheep is enormous. Parasitic infection can be shown best when an animal is butchered. Future demonstrations on feeding and management have had their origin at a farm butchering demonstration. The very nucleus of a breeding program started among a group of farmers at a meat demonstration.

It is not uncommon to find 100 farmers keenly interested in the judging of cured hams and bacon at a county meat show. They ask, "What makes the difference in hams?" The reply is, "Not always the cutting, but the kind of pig you had when killed." That leads to better selection and breeding which in turn will produce more and a better-shaped ham.

Similar questions relating to yields of beef and lamb develop when beef and lamb are cut at farm demonstrations. Many cutting demonstrations have started the livestock breeder to studying his operations a little more carefully.

Training County Agents

Of the 233 county agents in the State only about half of them have had special training in killing and cutting pork, beef, and lamb. Because of the large percentage of agents still demanding help on meat work the agents' training school seemed the most practical method of reaching the largest number through the fall and winter butchering season.

These meetings were most effective when arranged on a farm. As in the past, the nutrition specialist assisted, presenting the canning demonstration to the home demonstration agents at the same time the county agents were learning the cutting.

Generally one and a half days are required for a training school, a half day for killing and putting the meat in refrigeration and a full day in cutting, curing, and canning.

Not more than eight agents were invited at a time. When possible one hog for each two agents was killed and one beef for each four agents.

Because of the popularity of the meat program and the extreme size of the State, the idea of giving special training to the agents seemed the only practical method in spreading the information rapidly.

Much credit must be given the home demonstration agents for stimulating some of the newer and better practices of home preservation of meat. They see the value of more careful cutting of the carcass and the need for more variety of products such as corned beef and dried beef. Through contact with the farm women they see a need for better methods of keeping cured meats through the summer. It was with such problems that the meat specialist assisted many of the home demonstration agents.

-From Texas Annual Report, 1934.

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INDIANA TON LITTERS

A study of the 10 heaviest litters in the Hoosier Ton-Litter Club in each of the 12 years it has been in existence shows that the average weight of the 120 litters involved was 2,654 pounds, and that the total pigs included was 1,397 or an average of 11.6 pigs per litter. Seventy-one of the litters were classified as purebred, and 49 as crossbred or grade. The sires of all were purebred. --Indiana Annual Report, 1934.

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The correlation of the animal husbandry project with the farm management project will be as follows - The animal husbandry specialists will select from the A.A.A. Farm Record Book such data and other information as have a direct relation to the animal husbandry project. From this a suggested outline will be prepared by the animal husbandry specialists grouping the information which is desirable for community, county and State use, and further analyzing and arranging the material for teaching use in promoting the animal husbandry project within counties and districts.

--From Kansas Animal Husbandry Plan of Work for 1935.

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RECENT PUBLICATIONS

(Only U.S.D.A. publications are available from the Department at Washington. In most instances others can be obtained from the institution or agency issuing them.)

Federal

"Conservation of Wastes from the Small-Scale Slaughter of Meat Animals" - U.S.D.A. Circular No. 63. Dec. 1934. 24 pages.

"The Direct Marketing of Hogs" - U.S.D.A. Miscellaneous Publication No. 222. Mar. 1935. 230 pages.

"Manual of the grasses of the United States" - U.S.D.A. Miscellaneous Publication No. 200. Feb. 1935. 1040 pages, illus. Cloth, $1.75.

"Regional Problems in Agricultural Adjustment" - prepared in Program Planning Division, A.A.A., U.S.D.A., Mar. 1935. 101 pages.

State

"Cottonseed Meal as a Supplement to Pasture for Fattening Steers in the Black Belt of Alabama," by Grimes, Sewell, and Cottier - Alabama Experiment Station Circular 72. Mar. 1935. 11 pages.

"Wintering Steers in the Black Belt of Alabama" by Grimes, Sewell, and Cottier - Alabama Experiment Station Circular 71. Feb. 1935. 8 pages.

"The Farm Pork Supply" by W. S. Rice and L. H. Marlatt - Georgia Extension Service Bulletin 448. Jan. 1935. 16 pages. 14 illus.

"Effect of Burning on Kansas Bluestem Pastures" by A. E. Aldous - Kansas Agricultural Experiment Station Technical Bulletin No. 38. Nov. 1934. 65 pages.

"Pasturing Winter Wheat in Kansas" by A. F. Swanson - Kansas Agricultural Experiment Station Bulletin 271. Jan. 1935. 30 pages.

"Acidosis of Pregnant Ewes: So-Called Pregnancy Disease of Sheep" by Dimock, Healy, and Hull - Kentucky Agricultural Experiment Station (Research) Bulletin No. 354. Nov. 1934. 26 pages.

"Rations for Maryland Hogs" by Jos. M. Vial - Maryland Extension Service Mimeograph No. 13.

"Sheep Investigations and Management Practices in the Upper Peninsula" by Leonard H. Blakeslee - Michigan Experiment Station Special Bulletin No. 255. Jan. 1935. 24 pages.

"Emergency Livestock Feeding" - Missouri Experiment Station Circular 182. Dec. 1934. 4 pages.

"Pregnancy Disease in Sheep" by Cecil Elder and A. W. Uren - Missouri Experiment Station Bulletin 345. Jan. 1935. 15 pages.

"The Prevention of Goiter in Farm Animals" by Howard Welch - Montana Experiment Station Circular 145. Nov. 1934. 6 pages.

"Lungworms in Sheep and Goats" - by J. N. Shaw - Oregon Experiment Station Bulletin 327. June 1934. 12 pages.

"Rye for Pasture and Seed in Tennessee" by L. R. Neel - Tennessee Experiment Station Circular No. 52. Jan. 1935. 4 pages.

"Chronic Copper Poisoning in Sheep" by I. B. Boughton and W. T. Hardy - Texas Experiment Station Bulletin No. 499. Dec. 1934. 32 pages.

"Immunization of Sheep and Goats Against Soremouth" by I. B. Boughton and W. T. Hardy - Texas Experiment Station Bulletin No. 504. Jan. 1935. 16 pages.

"Summer and Winter Rations for Fattening Hogs" by H. H. Smith and E. J. Maynard - Utah Experiment Station Bulletin 254. Jan. 1935. 24 pages.

Commercial

"Horse and Mule Power in American Agriculture" by Wayne Dinsmore - Book 218 of The Horse and Mule Association of America, Chicago, Ill. Price 10¢.

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